

BESSE policy brief 2

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Policy Brief No 2



Project No: 226744

Promoting Environmentally Sustainable Sanitation through Knowledge Brokerage and Innovation

- Policy Brief -

This policy brief is the final output from a project funded by the European Commission entitled *Brokering Environmentally Sustainable Sanitation for Europe (BESSE)* under the EU-FP7 programme 'Enhancing connectivity between research and policy-making in sustainable development' (ENV.2008.4.2.3.2). The project was carried out between June 2009 and October 2012 by a consortium of project partners coordinated Maastricht University Science, Technology and Society studies (MUSTS, The Netherlands).

Introduction

The BESSE project was based on the premise that existing approaches to sanitation service provision in Europe are inherently resource inefficient and environmentally unsustainable. In response to this, there are already many on-going initiatives to develop new technologies to promote more environmentally sustainable sanitation. However, many of these remain as research projects and there are few examples where systems have been implemented at scale.

Within this context, BESSE identified types of knowledge brokerage actions and assessed how these actions can facilitate innovation in the sanitation sector to promote increased resource recovery and environmentally sustainable sanitation.

A combination of sanitation companies, research institutes and public policy agencies were engaged in the project and three case study sites Bulgaria, Italy and The Netherlands provided the focus for empirical research for the project. The Policy Guideline Report, on which this Policy Brief is based, advises on how knowledge brokerage can be shaped and enhanced, especially to encourage innovation to incentivise uptake of environmentally sustainable sanitation (ESS).

From resistance to innovation

The research identified a clear demand for innovation in the sector but also found the current approach towards uptake and implementation of innovative practices to be ineffective towards achievement of a transformation in the way in which society manages its waste. This existing approach is overly *conservative*, discouraging investments in more environmentally sustainable technologies, and is the combined result of the following forms of resistance to innovation:

1. **Technological inertia** - most utilities lack incentives to invest in innovative systems and are unwilling to change organisational processes. They operate in a low-competitive business environment strongly tied to the national contexts in which it is deemed too risky to invest in innovative technologies.
2. **Community disengagement and lack of mobilisation over sanitation issues** – the majority of people are not interested in sanitation issues and is only considered relevant by a small number of civil society organisations. It is almost never the sub-

ject of discussion between citizens and local governments; and there is little media coverage.

3. **Institutional immobility** - In general, policymakers and utilities have a limited perspective of the role of sanitation in society and sustainable sanitation is not high on the political agenda even in countries where the political context is more favourable for change.
4. **Research deficiencies** – the majority of research fails to engage with stakeholders with interests in sanitation, it does not respond to market needs and is considered to be often too academic. Research in this field also suffers from i) fragmentation, since it is subject to disciplinary, institutional, communicative and regulatory barriers; ii) isolation from global research trends; and gives insufficient consideration to the needs of innovation.

The lack of investment in research and innovation, fueling technological inertia and reinforcing community disengagement from these issues. An understanding of how the combined effect of these forms of resistance result in a 'vicious circle' of constraint which undermines efforts to promote environmentally sustainable sanitation.

Supporting the cycle of innovation

The BESSE researchers identified that low levels of innovation in sanitation in Europe are closely tied to the attitudes of and relations between a multiplicity of stakeholders involved in all stages of technology development and application on the one hand and those responsible for provision and regulation of existing services on the other. Policy recommendations are therefore directed towards unlocking these and promoting a cycle of innovation in science and technology.

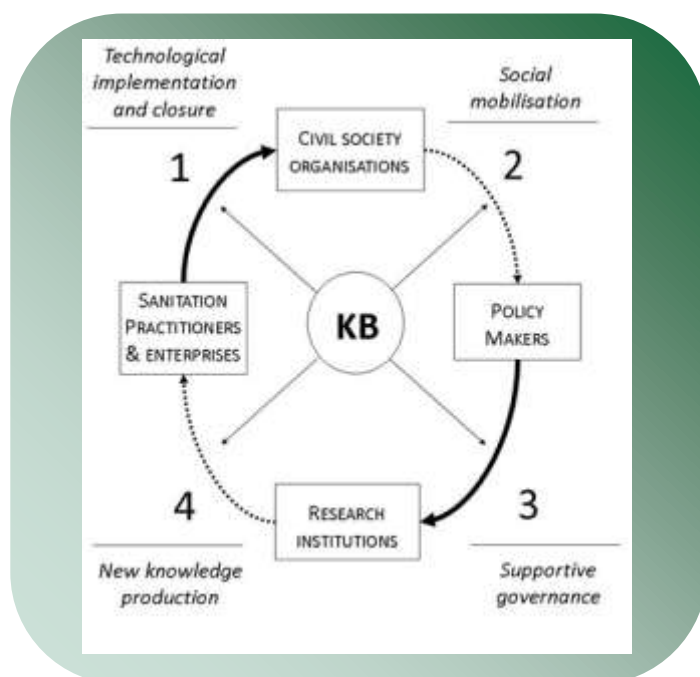
There are four processes that form the basis of an *innovation cycle model*:

1. **Promotion of new technologies** with the goal of gaining acceptance of technological innovation into society. Demonstration projects can provide an effective means to introduce new technologies; demonstrating their benefits and overcoming pre-conceived ideas and cultural resistance.
2. **Social mobilisation** - the impacts produced by new technologies as they spread through society, coalesce into demands for 'something new'. When these forms of mobilisation begin to reach a critical mass, they come together and reach a critical mass, creating social pressure for change.

Putting knowledge transfer on the sanitation innovation policy agenda

3. **Supportive governance** comes about when *social mobilisation* manages to engage with the main-stream institutions in the sector and specific governance mechanisms (policy and regulations) begin to take shape.
4. Subsequently supportive governance stimulates action from the research world to **produce new knowledge**, by setting up new programmes and committing more research funding for new disciplinary or interdisciplinary areas.

Outcome from the research then feeds back into the promotion of new technologies in a process of technological implementation and closure as shown in the figure below.



Function of knowledge brokerage in promoting innovation

Although the gap between new knowledge and its practical application is related to a lack of communication to transfer this knowledge, the research identified that the issues that constrain the uptake of innovative solutions are far more complex. In fact, factors of a non-communicative nature are the biggest obstacles to relations between researchers and sanitation practitioners; and which hinder the uptake of innovative solutions to environmental sanitation problems.

Knowledge brokerage responds to this challenge by performing several functions which go beyond the mere transmission of information and help users understand how new knowledge or new technology can be practically applied. It interprets users' needs and provides information on technological options and promotes the crea-

tion of networks amongst sanitation stakeholders and practitioners so that knowledge can be shared easily and continuously.

The lack of innovation in sanitation cannot be solved by only improving the interactions between research and industry, but mostly by 'injecting' knowledge brokerage in *all phases of the innovation process*. Strategic knowledge brokerage should therefore involve not only research institutions and utilities, but also the other major sanitation players, beginning with civil society organisations (especially environmental movements) and policymakers.

Putting knowledge transfer on the sanitation innovation policy agenda

Putting the issue of knowledge transfer onto the agenda of key sector players is fundamental for increasing awareness about the ways in which knowledge brokering can promote innovation. Key players in sanitation need to understand that knowledge transfer cannot be achieved in the absence of a parallel spread of brokerage-related expertise, skills and professionals.

There is a need to engage with national, European and international networks and associations of local governments and sanitation professionals, private sector and civil society organisations and to raise the profile of knowledge brokering. This may be achieved by organisation of seminars and events, dissemination of advocacy material and guidance to enable these organisations enhance knowledge sharing within and between organisations.

There is also a need for to attract specialist and experience knowledge brokerage experts to the field of sanitation and increased application of tools and adoption of processes that enhance the dissemination and transfer of knowledge. They can play an active role in developing knowledge brokerage policies within and outside of their organisations.

To hasten the application of knowledge brokerage in sanitation, it is essential to promote a rapid accumulation of experiences based on the integration of knowledge brokering practitioners and sanitation players. This requires the direct involvement of the expected beneficiaries of knowledge brokerage services, such as utilities that already interact with the universities through liaison offices, technicians or technology companies that share information in professional networks.

The **BESSE** website (<http://www.besse-project.info/>) provides a variety of other materials, including Newsletters and Policy Briefs. The full Policy Guidelines Report is also available electronically, including hyperlinks to other resources.

Recommendations for policymakers

The social function held by knowledge brokerage may be to facilitate lobbying activities addressed to those political, economic and cultural institutions that play a role in decision-making processes related to sanitation and sanitation research, in order to increase their engagement in support of more sustainable approaches to sanitation.

BESSE developed a set of policy guidelines that includes 26 recommendations that addresses research institutions, utilities, civil society organisations and policy makers.

Although the recommendations and policies are focused on sanitation and sanitation-specific problems related to knowledge transfer, most of the policy recommendations have a broader relevance to related to environmental issues and the interface between societal and political concerns in Europe. The recommendations presented in the Policy Guidelines Report on which this Policy Brief is based, are therefore particularly relevant for the European research policies that are seeking to intensify relationships and cooperation between key societal actors involved in research and innovation as part of the 7th Framework Programme to Horizon 2020.

Recommendation 1: Include sanitation in the agenda of environmental policies

Involve decision makers in public seminars and initiatives on sanitation; production and dissemination of publications, toolkits, guidelines and sourcebooks on sustainable sanitation in relation to other environmental issues specifically conceived to be read by policymakers; production of policy briefs and policy papers on ESS; awareness raising programmes addressing local authorities; collection and dissemination among policymakers of information and statistical data on risks related to traditional sanitation systems and on benefits deriving from ESS-oriented technologies.

Recommendation 2: Facilitate regular interaction between expert knowledge and decision making on ESS

Involvement of experts on ESS in the places where environmental policies are planned (parliamentary committees, task forces for the development of public envi-

ronmental policies, etc.); organisation of seminars for decision makers and their staff; promoting flagship initiatives and singling out the best interaction between policymakers and experts; spread and replicated; establishing virtual information desks tailored to policymakers' information needs on environmental issues.

Recommendation 3: Improved coordination of the different institutional levels involved in sanitation policies

Promotion of formal and informal contacts among the players involved; activation of institutional arrangements allowing rapid contacts and simplified coordination procedures; institutional networking activities; promotion of consultation meetings and joint initiatives; development of monitoring activities on the implementation of public policies on water and sanitation and dissemination of the results to ministries and administrations.

Recommendation 4: Facilitate the production of regulations and standards to support research and innovation in sanitation

Research and collection of data on regulations on sanitation for dissemination (through publications, online databases, electronic publications, etc.); consultation and opinion pools among sanitation players on regulations and standards in order to identify barriers to innovation and to collect proposals for change; collection of best practices in standard setting; promotion of the development and application of innovation-oriented policy evaluation criteria.

Recommendation 5: Support the creation of a critical mass of actors that can mobilise resources for ESS-oriented research

Creating information platforms facilitating the establishment of agreements on water and sanitation research and coordinating different funding agencies and programmes; transferring knowledge on possible institutional arrangements encouraging the creation of public-private research funds; establishment or enhancement of networks involving research funding agencies and institutions (venture capital, credit institutions, etc.); information campaigns to raise funds for research on ESS; support for establishing incubators and high-tech spin-offs focused on ESS-oriented technologies; awareness raising activities addressed to water companies to encourage engagement as research funders or promoters.